State of Missouri

Department of Natural Resources



Water Protection Program

Water Quality Standards Geographic Information System Data Guide for Public Notice

Interim Rulemaking, 2013

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Chapter 1: General Information

1.1 Please Read

The Missouri Department of Natural Resources is providing this document as a guide to using Water Quality Standards rulemaking reports, the online search and the interactive map viewer during public notice of a proposed Water Quality Standards (WQS) rule. In a future rulemaking, the reports and online services explained in this user guide will replace Tables C through I published in rule. This is due to the increasing volume and complexity of information tracked for decision and rulemaking processes within the State of Missouri. Copies of the tables are available upon written request to the Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, P.O. Box 176, Jefferson City, MO 65102-0176.

The department recommends those unfamiliar with GIS and searchable databases read this user guide and others before attempting to use the online services. Links to additional help documentation and webpages are located in the Helpful Links section of this user guide. If problems arise during the use of either service, the department has staff available to answer questions during regular business hours, 8 a.m. to 5 p.m., Monday through Friday. Please use the contact information provided on the webpage for the online service in question.

1.2 What is "Water Quality Standards"?

Water Quality Standards is a federal program and the foundation of the Clean Water Act. The program uses individual standards to define water quality goals for a body of water by designating its beneficial uses and setting maximum allowable concentrations of pollutants, referred to as criteria, for each designated use, and establishing antidegradation provisions. State Law delegates the department to administer WQS at the state level and uses tables to list the name, class, designated uses, and extent of protection for individual stream segments and lakes. All resource management activities of Missouri's Water Protection Program focus on meeting water quality standards; such as issuance and enforcement of discharge permits, inspection of wastewater and stormwater treatment facilities, providing technical assistance with wastewater or stormwater control and providing financial assistance for building and maintaining wastewater treatment facilities. Visit the departments' Water Quality Standards webpage for more information.

The Clean Water Act requires the department to review the state's Water Quality Standards at least once every three years, referred to as a triennial review. The process for carrying out the review, called a rulemaking, requires public notice of all changes and a public hearing held during the public comment period. The interested public is encouraged to participate in the process if they have concerns regarding the content of the proposed rule or if they would like to provide written support for the process. Visit the Water Protection Program Rules in Development webpage for more information.

1.3 What is "GIS"?

A geographic information system, or GIS, allows users to view, understand, question, and interpret data in the form of maps and tables. These digital mapping capabilities provide a tool allowing better management of Missouri water quality standards by the department and allow more transparency during the rulemaking process. The department uses interactive map viewers as its online GIS interface, which allows the public to view and query data sets in a map setting. Please visit the department's Geographic Information Systems webpage for more information on using the interactive maps and available data sets.

1.4 Water Protection Program Online Services

Water Quality Standards Search is an online tool that allows users to find information from tables published in rule. Other online services for permitting, monitoring and assessment, data submissions and more are available on the <u>Online Services</u> webpage. As the department works to provide more information to the public, familiarity with these services become an important means for the public to review, comment and understand important actions and issues concerning water quality.



Interactive Map Viewer – Jefferson City, Mo. Thick pink lines depict classified streams (Missouri River and Turkey Creek) in Stream Classifications and Uses Designations (Table H), while thin blue lines depict unclassified streams (Wears Creek, etc.).

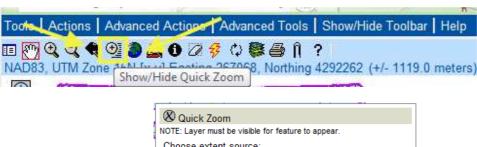
Chapter 2 : Getting Started

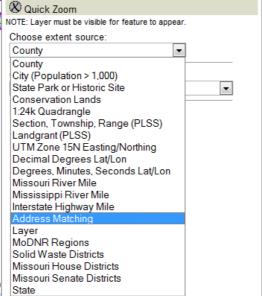
2.1 Learning the Tools

By using the online search and the interactive map, along with the information included in the proposed rule, users are capable of reviewing changes to WQS throughout the rulemaking process. The online search makes it easier to find information by entering in search criteria and the interactive map viewer provides a visual aid to interpreting water quality standards. Users can query any data in any layer in the interactive map viewer using information they are familiar with or may have available, such as:

- Permit number or Water Body ID
- Address, geographic coordinates, or Section, Township and Range
- Area name (state park, city, county, etc.)
- And much more!

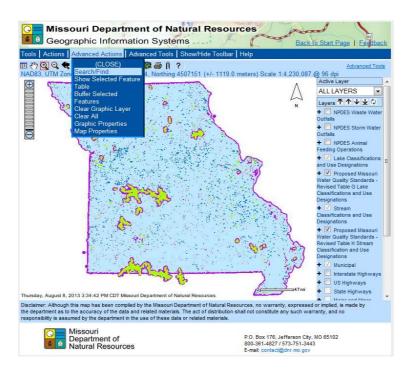
The Quick Zoom tool allows users to quickly search for known geographic locations or use coordinates to see how standards in the area may change.





Interactive Map Viewer, Quick Zoom Tool – Location on tool bar (yellow) and pop-up window, Address Matching, highlighted.

The Search/Find tool under the Advanced Actions drop-down menu allows users to query information in any layer included in the interactive map.



Interactive Map Viewer, Proposed Missouri Water Quality Standards – Advanced Actions Search/Find tool, highlighted. Selecting Search/Find opens the Search Page shown below.



Interactive Map Viewer, Search Page – Available search criteria on the Search Page (yellow). Note: this search is case sensitive.

For information about the map layers such as development, dates of relevancy, accuracy and attribute definitions, refer to its metadata. Users can find it by clicking on the + symbol to expand the layer in the list of layers to the right of the map.



Interactive Map Viewer, Layers list – Layer expanded to show links to metadata, set filter, and properties.

For more information on queries and other tools in the interactive map, refer to the instructions by clicking on the Help link.



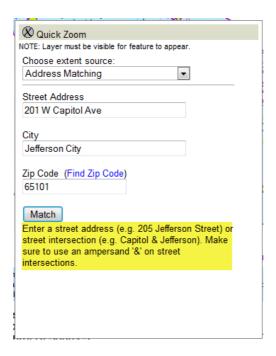
Interactive Map Viewer, Tool bars – Help link to instructions (yellow).

2.2 Finding a Location of Interest

The biggest benefit provided by the department's online services is the ability for users to search and investigate water quality standards in their area of interest, whether at the location of their home, business or favorite recreation spot. Users are highly encouraged to review water quality standards near these areas using the online services. Users can do this by simply searching for an address, recreational area, road crossing or other location in the interactive map viewer itself.

2.2.1 Finding an Address Using Quick Zoom

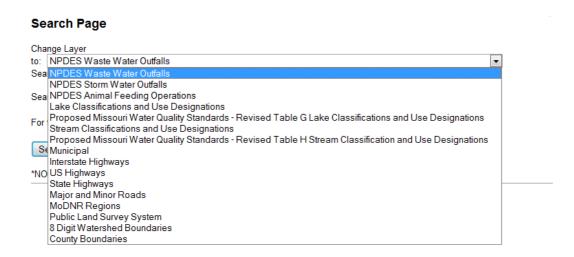
To find an address, follow the instructions for Address Matching in the Quick Zoom tool pop-up window.



Interactive Map Viewer, Quick Zoom Tool Pop-up Window – Address Matching instructions (yellow).

2.2.2 Finding a Location Using Search/Find

To find an area of interest, users can use the Quick Zoom tool. Although this tool only contains certain sources, additional sources are included in the interactive map viewer as layers and are searchable when using the Search/Find tool. When searching within a layer navigate to the Search Page and then follow the process outlined below using search criteria specific to the location of interest.



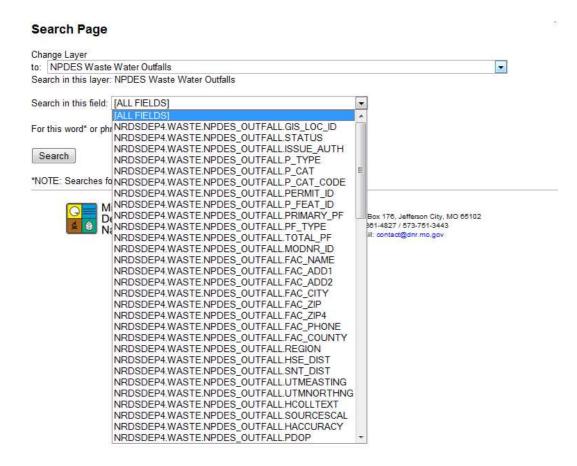
Interactive Map Viewer, Search Page – Change Layer dropdown list with available layers.



Interactive Map Viewer, Search Page – Search criteria entered was Municipal, Name, and Union.

2.2.3 Finding a Permitted Outfall

To find a permitted outfall of interest, use the Search/Find tool and search criteria specific to the permit of interest. All information included in a permit (Permit ID, Facility Name, etc.) is available as an attribute in the layer and therefore searchable.



Interactive Map Viewer, Search Page – NPDES Waste Water Outfalls, Search Field dropdown list with available fields.

2.3 Learning Water Quality Standards

In order to find a water body and its corresponding water quality standards, users should first find the water in either Water Quality Standards Search or in the Summary of Proposed Revisions report. These provide a Water Body Identification number, or WBID, unique to each water body or water body segment listed in the tables of the rule. Referring to tables in rule provides a name and location information, which is searchable in the interactive map. However, a WBID makes it easier to search in the interactive map. The WBIDs are also useful in searching for assessment, permitting, and other management activities pertaining to a water body.

2.3.1 Effective Water Quality Standards

Tables G and H are the tables published in rule at $\underline{10 \ CSR \ 20\text{-}7.031}$ that contain the classifications and use designations for all classified lakes and streams. Other designations for waters (classified or unclassified) are listed in the remaining tables, C – F and I, and are titled according to the designation they represent.

Note: Not listed in any table and therefore not included in the online search are unclassified waters. Additionally, the department's Division of Geology and Land Survey maintains Table J – Losing Streams, which is also not included in the online search.



 ${\it Clean Water Information System, Water Quality Standards Search-Classifications \ and \ use \ designations \ selected.}$

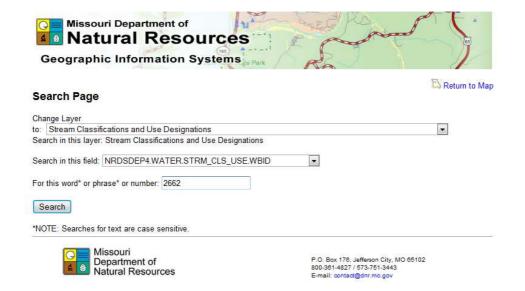
The <u>Water Quality Standards Search</u> is a good starting place to determine if a table in rule includes a water body of interest. It is the recommended starting place for members of the public new to WQS. Only information published in rule and effective (i.e. enforceable) under state law is available using the online search. To obtain the best search results please review the Water Quality Standards Search definitions for the individual search fields.

Note: as stated in the definitions, due to the various abbreviations of stream names, it is better to use the main name of the stream and leave off the generic term (i.e. creek, river, branch, etc.).

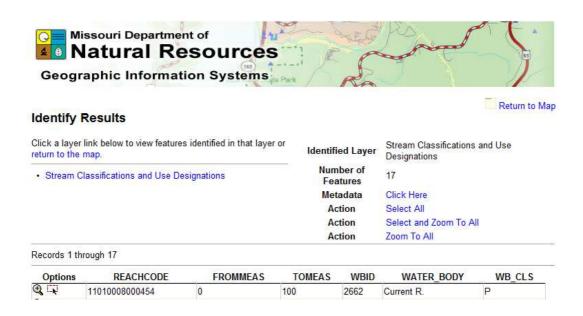


Clean Water Information System, Water Quality Standards Search – Table H WBIDs for Current R. (yellow). As shown in the example, a search on "Current" for [Water Body Name] gives several results for several tables. The two Table H WBIDs, 2636 and 2662, have different lengths, designated uses, and legal descriptions (red).

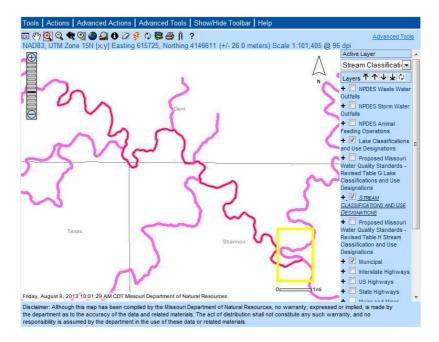
The online search results include all information for all tables published in rule, therefore some fields in some tables will remain blank. To better define protections on different extents of a stream, Missouri WQS divides some larger streams into several smaller segments. The department assigns a WBID to the individual segments. When two or more WBIDs identify different segments of the same stream, it is important to pay close attention to differences in the class and designated uses of the stream segments and the location information. For more information on the different classifications and designated uses, refer to the published rule. To see where this change in protections occurs using the Interactive Map Viewer, the user can follow the images below to search for a WBID and zoom to it.



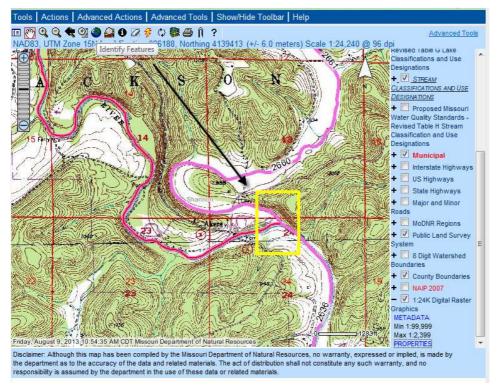
Interactive Map Viewer, Search Page – Stream Classifications and Use Designations (Table H), WBID, 2662. As seen in the example, search for WBID 2662 at 18.8 miles long versus the longer WBID 2636 at 124 miles.



Interactive Map Viewer, Identify Results – Current River WBID 2662, Select and Zoom to All.



Interactive Map Viewer, Stream Classifications and Use Designations – Selected (red) and zoomed to WBID 2662, change from WBID 2636 to 2662 (yellow), and other Stream Classifications and Use Designations (pink).



Interactive Map Viewer, Stream Classifications and Use Designations – Identify Features Tool, WBID 2662 to 2636 change at confluence with WBID 2660 (yellow). As seen in the example, the change in WBIDs (designated uses, etc.) is at the confluence with another large stream.

Options	REACHCODE	FR	OMMEAS	S TON	IEAS	WE	SID	WATER	BODY	WB_CLS
2 4	11010008000454	0		100		2662	Cur	rent R.		Р
2 1	11010008000437	0		100		2660	Gla	dden Cr.		Р
3 1	11010008000436	0		100		2636	Cur	rent R.		Р
Options	DS_COUNTY	US_COU	INTY	HUC_8	-	SIZE_	LEG	AL_DS		LEGAL_US
2 1	Shannon	Dent		11010008	18	.8	24,31N,	6W	Monta	uk Spring
3 C	Shannon	Shannon		11010008	2.5	5	Mouth		13,310	1,6W
Q 🗆	Ripley	Shannon		11010008	12	4	State L	ne	24,311	1,6W
Options	AQL USE	CDF USI	E	CLF USE		DWS	USE	IND	USE	IRR USE
2 1	X	X								
2 17	X									
Q []	X X		х							х
Options	LWW_USE	SCR_USE	WBC	_A_USE	v	/BC_B	USE	#SH	APE#	OBJECTIO
34	X X		Х					[Geomet	ry]	2003
2 4	X				x			[Geomet	ry]	17507
Q []	x x		X					[Geomet	100	19996

Interactive Map Viewer, Identify Results – Attributes, WBIDs 2662, 2660, and 2636. The three WBIDs, 2662, 2660 and 2636 have different lengths and designated uses (yellow).

Although the process depicted above included streams, lakes are also included in effective standards and the process steps are similar. Whether by WBID or location of interest, the interactive map viewer is an easy method to review and investigate any effective standards in the area of interest.

2.3.2 Proposed Water Quality Standards

For those interested in changes to Missouri WQS, a good place to start is the Proposed Amendment and the Rulemaking report. The <u>Proposed Amendment</u> (pg. 939) published in the Missouri Register includes all proposed changes to the rule language and tables published in rule. The <u>Rulemaking Report</u> includes the reasons for the rulemaking and the proposed revisions. As stated previously, the tables published in rule do not provide a WBID and the online search does not include proposed revisions. Instead, it is recommended that users refer to the <u>Summary of Proposed Revisions</u> reports (items 45 and 46), which summarize revisions to the tables in rule while providing WBIDs. The only water bodies listed in these reports are those with revisions. For more information on the proposed rule and changes, refer to the Water Protection Program <u>Rules in Development</u> webpage.

Missouri Department of Natural Resources Water Protection Program Summary of Proposed revisions - Table H

			Class	Class		Size				
WBID	Waterbody Name EFF	Waterbody Name REV	EFF	REV	Size EFF	REV	From EFF	From REV	To EFF	To REV
A 3960	100 K Statewide Extent		С		84845.00		Statewide		Statewide	
A 3832	Bates County Drainage Ditch		P		23.60		Mouth		2,39N,33W	
R 2667	Bean Cr.		С		6.30	6.40	Mouth		9,32N,8W	16,32N,8W

Summary of Proposed Revisions report – Table H – Additions (A), 100 K Statewide Extent WBID 3960 and Bates County Drainage Ditch WBID 3832 (bold); revision (R), Bean Creek WBID 2667 (italics and bold).

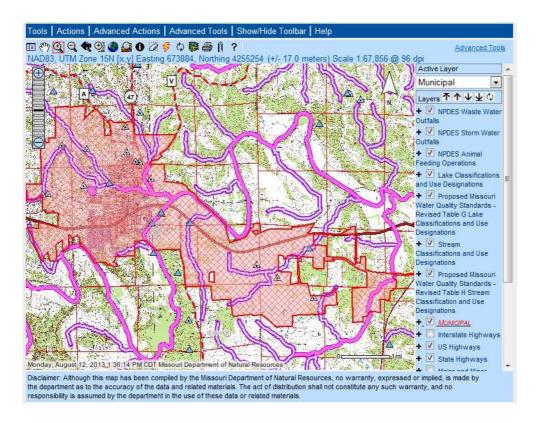
The summary reports located on the Rules in Development webpage use similar formatting that is required for rule language changes, **bold** font for new type and *italics* for removal of type. The reports include additional information such as the status of the change and WBIDs. The status indicates whether the change is an addition of a new WBID (A), deletion of an effective WBID (D), or a revision to an effective WBID (R). Neither the status nor the WBID are included in the tables published in the proposed rule. To see where this change occurs in the interactive map viewer, the user can follow the same process to search for a WBID and zoom to it.

2.3.3 Proposed Water Classification (1:100,000-Scale)

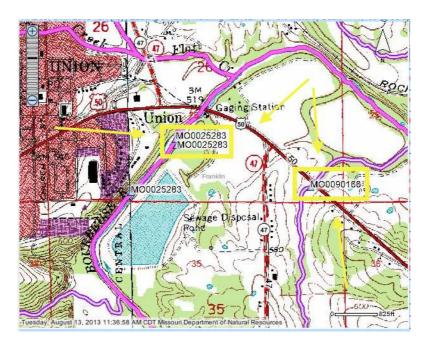
Unique to this proposed rule is the classification of streams and lakes throughout the state, within the 1:100,000-scale. The use of the interactive map viewer makes it possible to see all proposed data for the first time, including the proposed water classification. Due to the statewide extent of the classification, it is not possible to see specific streams or lakes when selecting and zooming to the WBIDs representing the classification. Instead, it is recommended that users zoom to a water or location of interest to investigate the classification.

Change Layer to: Municipal Search in this layer: Municipal Search in this field: NRDSDEP4.BOUNDARY.MUNICIPAL.NAME For this word* or phrase* or number: Union Search *NOTE: Searches for text are case sensitive.

Interactive Map Viewer, Search Page – Municipal, Name, Union. Select and Zoom to Union in results.



Interactive Map Viewer, Proposed Missouri Water Quality Standards – Municipal, Union, selected (red). As shown in the example, - Revised Table H (purple) shows the proposed classification of streams in and around Union, Mo. Turn on other layers to determine location of road crossings or permitted outfalls. Zoom and identify any items of interest.



Interactive Map Viewer, Proposed Water Quality Standards – Zoomed to NPDES Waste Water Outfalls near MO-47 and US-50 in Union, Mo. Four outfalls labeled with permit IDs (yellow). As shown in the example, MO0025283 has wastewater discharges on the Bourbeuse River (WBID 2034) classified in Stream Classifications and Use Designations (pink). Additionally, MO0090166 has a wastewater discharge on an unnamed tributary to the Bourbeuse River, proposed for classification in Revised Table H (purple). Find this information by identifying and reviewing attributes of the different layers.

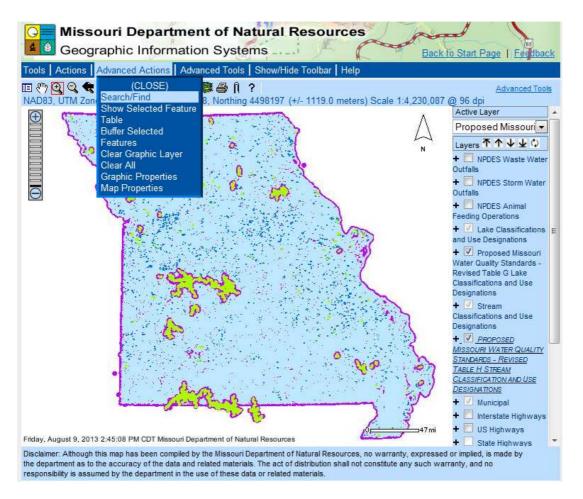
The GIS layer representing the proposed changes for streams is the — Revised Table H Stream Classifications and Use Designations layer. A separate layer represents the proposed changes for lakes to be included in Table G. The attributes for these layers include additional information compared to that of the effective Classifications and Use Designations layers. As previously shown, users can identify waters added due to the proposed classification with WBID 3960 (Table H) and 7630 (Table G) and a WB_STATUS of "A". Another attribute specific to the water classification includes a source description, used to track whether a water body was added to the Table H due to classifying the 1:100,000-scale or it already existed in Table H. For more information on the layer and its attributes, refer to its metadata.

Options	EVENTDAT	REACHCODE	RCHSMDATE	RCH_RE	SRC_DESC	FEAT_URL
⊕ ⊏	06/21/2012 07:00:00 PM	07140103001449	03/18/2012 07:00:00 PM	High	Table H	
⊕ ⊏	04/04/2011 07:00:00 PM	07140103001201	12/15/2002 06:00:00 PM	High	100k Extent	

Interactive Map Viewer, Identify Results – Revised Table H attributes for Bourbeuse River and its unnamed tributary. As shown in the example, the Bourbeuse River already exists in Table H while addition of the unnamed tributary is due to the classification (yellow).

2.3.4 Proposed Revision

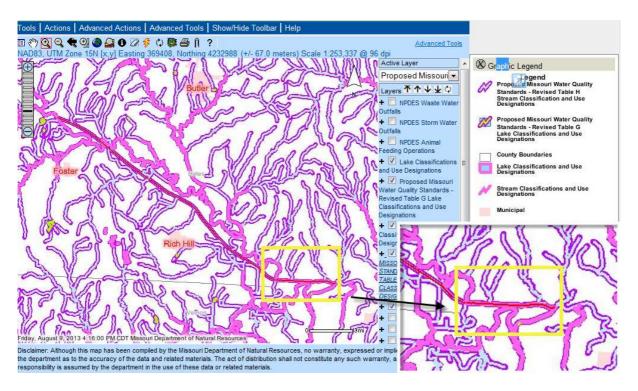
To review a proposed revision, be sure to pay special attention to the attributes of the effective and proposed standards layers. Reviewing revisions using the process outlined below in conjunction with those outlined previously in this user guide will provide the greatest amount of information on the effective and proposed water quality standards.



Interactive Map Viewer, Proposed Missouri Water Quality Standards – Advanced Actions Search/Find tool, highlighted. As shown in the example, – Revised Table H Stream Classifications and Use Designations (italics) is visible (light blue). Revised Table H includes WBID 3960, proposing classification of 84,845 miles of stream. Revised Table G includes WBID 7630, proposing classification of 26,517 acres of lakes (green).



Interactive Map Viewer, Search Page – – Revised Table H, WBID 3832.



Interactive Map Viewer, Proposed Missouri Water Quality Standards — Revised Table H, WBID 3832, selected (red). As shown in the example, proposed WBID 3832 overlaps effective Stream Classification and Use Designations (yellow). Zoom in and identify All Visible Layers where the overlap occurs.

Identify Results

Click a layer link below to view features identified in that layer or return to the map.

- · Stream Classifications and Use Designations
- · Proposed Missouri Water Quality Standards Revised Table H Stream Classification and Use Designations
- Public Land Survey System
- · County Boundaries
- · 1:24K Digital Raster Graphics

Stream Classifications and Use **Identified Layer** Designations

Number of Features

Action

Click Here Metadata Select All

Action Select and Zoom To All

Action Zoom To All

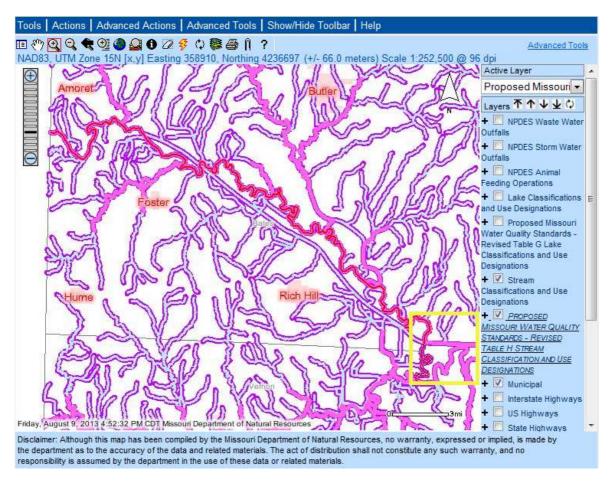
Interactive Map Viewer, Identify Results - All Visible Layers. Select Revised Table H to view the layer's attributes and identify the reason for the overlap. Select Stream Classification and Use Designations to see effective standards and compare to those in Revised Table H.

Options	TE	BLE_NAME	NHD	METADA	ATA	STNDR	D_ID	WBID	WBID	TXT
§ 🖒	Н		Υ	N		4511		3832	3832.00	
§ 🖒	Н		Υ	N		850		1297	1297.00	
Options		WATER_BOD	Υ	WB_CL	.s D	S_COUNTY	US_C	OUNTY	HUC_8	SIZE
\$ E	Bates Cour	nty Drainage Dit	ch	Р	Bate	s	Bates		10290102	23.6
§ 🖒	Marais des	Cygnes R.		Р	Bate	s	Bates		10290103	48.8
Options	UNIT	LEGAL D	6	LEGAL US	EFI	ECTIVE	WB	STATUS	WB [ONIED
	Miles	Mouth	2,39	N,33W	N		 A		N	
\$ E	Miles	Mouth	Stat	e Line	Υ		R		N	
Options	WB F	TURE AQ	L USE	AQL STA	ATUS	AQL DNI	ED	AQL FTU	IRE CD	F USE
Options										
S C	N	Y		A		N	N		N	

Interactive Map Viewer, Identify Results – Revised Table H, Marais des Cygnes WBID 1297 revision and Bates County Drainage Ditch WBID 3832 addition. Proposed addition of WBID 3832 will replace WBID 1297 where the overlap occurs. Hence, WBID 1297 has proposed revisions to change the location information identified by the WBID (red).

Options	REACHCODE	FROMMEAS	TOMEAS	WBID	WATER_BODY	WB_CLS
⊕ □	10290102000064	0	100	1297 Ma	rais des Cygnes R.	P
Options	DS_COUNTY	US_COUNTY	HUC_	8 SIZE_	LEGAL_DS	LEGAL_US
⊕ ⊏	Bates	Bates	10290102	32	19,38N,29W	State Line
Options	AQL_USE	CDF_USE	CLF_USE	DWS_U	JSE IND_USE	IRR_USE
⊕ ⊏	Х			X		Х
Options	LWW_USE	SCR_USE W	BC_A_USE	WBC_B_U	JSE #SHAPE#	OBJECTID
(€) 💢	X	X			[Geometry]	638

Interactive Map Viewer, Identify Results – Stream Classifications and Use Designations, WBID 1297. Compare the legal descriptions for WBID 1297 in both Revised Table H and effective Stream Classifications and Use Designations (red). Search and zoom to WBID 1297 in Revised Table H to see its new extent.



Interactive Map Viewer, Proposed Missouri Water Quality Standards – – Revised Table H, WBID 1297, selected (red). As shown in the example, the route of WBID 1297 changes from its location in Stream Classifications and Use Designations (yellow).

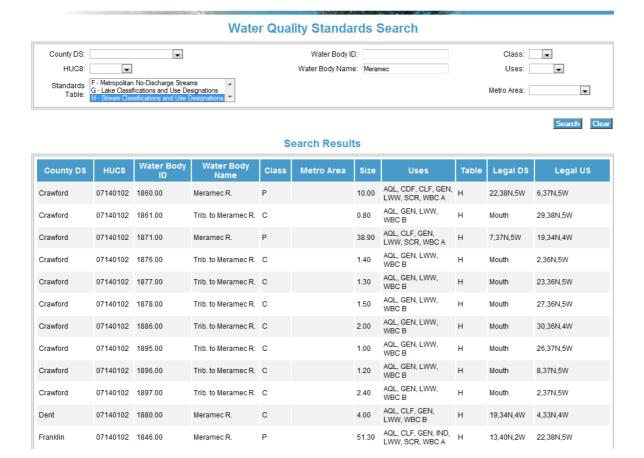
2.3.5 Additional Standards

Water bodies of interest are also searchable by other attributes of standards including, downstream county location, class, 8-digit watershed (HUC8), name or designated use. The user can search for these attributes in the online search or directly in the interactive map. However, using the process mentioned previously may provide an easier way to locate a water body while understanding the changes to its standards.

Note: the online search is limited to 500 rows in the search results.

Your search exceeded the maximum limit of 500 rows. Please refine your search.

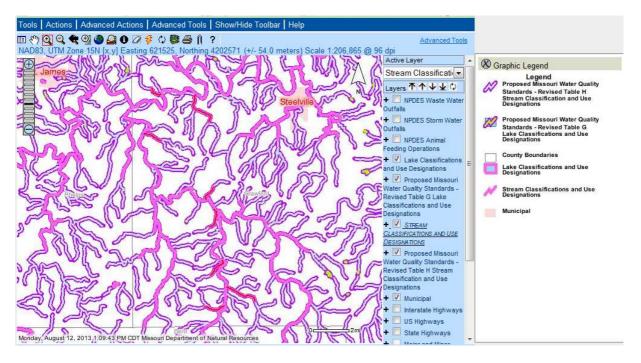
Clean Water Information System, Water Quality Standards Search – Search limit warning.



Clean Water Information System, Water Quality Standards Search – Table H, "Meramec" for [Water Body Name]. As shown in the example, there are several WBIDs for Meramec River, including unnamed tributaries. Use the WBID of interest to search and zoom to it in the interactive map. Alternatively, the user can search for "Meramec R." or "Trib. to Meramec R." to locate all WBIDs for that name in the interactive map.

				Action	200111 10 7 11	
Records 1 t	hrough 14					
Options	REACHCODE	FROMMEAS	TOMEAS	WBID	WATER_BODY	WB_CLS
⊕ 🗔	07140102002350	0	100	1897	Trib. to Meramec R.	С
⊕ ⊏	07140102002340	0	100	1897	Trib. to Meramec R.	С
⊕ ⊏	07140102002341	0	100	1897	Trib. to Meramec R.	С
⊕ ⊏	07140102002342	0	100	1897	Trib. to Meramec R.	С
⊕ ⊏	07140102001491	0	40.58665	1861	Trib. to Meramec R.	С
⊕ 🖵	07140102002325	0	100	1896	Trib. to Meramec R.	С
⊕ 🖵	07140102002312	0	48.10663	1895	Trib. to Meramec R.	С
⊕ 🗔	07140102001969	0	59.03479	1877	Trib. to Meramec R.	С
⊕ ⊏	07140102002218	0	79.78253	1886	Trib. to Meramec R.	С
⊕ 🖵	07140102002217	0	100	1886	Trib. to Meramec R.	С
⊕ ⊏	07140102001974	0	16.6452429985	1878	Trib. to Meramec R.	С
⊕ 🗔	07140102001972	0	100	1878	Trib. to Meramec R.	С
⊕ ⊏	07140102001962	0	100	1876	Trib. to Meramec R.	С
⊕ 🖵	07140102001963	0	43.1099	1876	Trib. to Meramec R.	С

Interactive Map Viewer, Identify Results – Stream Classifications and Use Designations, Trib. to Meramec R. Select and Zoom to All to see their locations.



Interactive Map Viewer, Proposed Missouri Water Quality Standards – Stream Classifications and Use Designations, Trib. to Meramec R., selected (red). As shown in the example, there are additional tributaries proposed for classification in Revised Table H (purple). Identify any tributary of interest in Revised Table H to see the proposed change.

Chapter 3: Helpful Links

Missouri Water Quality Standards

http://dnr.mo.gov/env/wpp/wqstandards/index.html

Interactive Map Viewer instructions

http://www.dnr.mo.gov/gis/advancedmapviewer.pdf

Online Data Services

http://dnr.mo.gov/edata.htm

Department Rulemaking Information

http://dnr.mo.gov/regs/index.html

Water Protection Program Rules in Development

http://dnr.mo.gov/env/wpp/rules/wpp-rule-dev.htm

Water Protection Program Public Notices

http://dnr.mo.gov/env/wpp/wpcp-pn.htm